

## REMARKS

Applicants first wish to thank the Examiner for her time and consideration involved in examining the application. Claim 1 has been amended.

Applicants wish to point out an error contained in the Supplemental Amendment filed on July 31, 2006 in furtherance of the Amendment filed on July 20, 2006 in response to the April 20, 2006 official action. In the April 20, 2006 official action, the Examiner rejected claims 1-8 under § 103(a) based on U.S. Pat. App. Pub. 2004/0050345 to Bauer ("Bauer") and further in view of U.S. Pat. App. Pub. 2003/0200742 to Smaling ("Smaling"). In Applicants' July 31, 2006 Supplemental Amendment, Applicants responded to this rejection by stating that the subject application (i.e., U.S. Serial No. 10/692,840), was, at the time the invention of the subject patent application was made, jointly owned by ArvinMeritor, Inc. and the Massachusetts Institute of Technology (MIT) and that Bauer and Smaling were owned by ArvinMeritor, Inc. This is partially incorrect because Bauer and Smaling are both owned by Arvin Technologies, Inc., while the invention of the subject application is jointly owned by Arvin Technologies, Inc. and the Massachusetts Institute of Technology (MIT). However, Arvin Technologies, Inc. is a wholly owned subsidiary and under the control of ArvinMeritor, Inc., the named entity actually involved in the joint research agreement with MIT discussed in the Supplemental Amendment. Therefore, Bauer, Smaling, and the invention of the subject application, **are still deemed to have been jointly owned by the same entity** under 35 U.S.C. § 103(c)(2), and thus are disqualified from being considered §102(e) prior art under § 103(c)(1).

## CLAIM REJECTIONS BASED UPON § 112

The Examiner rejected claims 5 and 6 under 35 U.S.C. § 112, second paragraph alleging that it is unclear how a mixture of air and fuel can contain no fuel as recited in claims 5 and 6. Applicants direct the Examiner to page 8, line 22 through page 9, line 5 of the specification, which provides the following:

As is defined in this specification, the term “air/fuel mixture” is defined to mean a mixture of any amount of air and any amount of fuel including a “mixture” of only air or a “mixture” of only fuel. For example, as used herein, the term “air/fuel mixture” may be used to describe an amount of air that is devoid of fuel. Moreover, the term “air-to-fuel ratio” is intended to mean the relation between the air component and the fuel component of such air/fuel mixtures including air/fuel mixtures which are devoid of one component or the other. For example, as used herein, the term “air-to-fuel ratio” may be used to describe an air/fuel mixture which is devoid of fuel even though the quantity of one component (i.e., the fuel component) is zero.

This passage of the specification clearly includes an air/fuel mixture devoid of fuel within the definition of an “air/fuel mixture” for purposes of claims 5 and 6. As such, Applicants respectfully believe the Examiner’s rejection is improper and should be withdrawn.

## CLAIM REJECTION UNDER 35 U.S.C. § 102 - NUMATA

In the official action, the Examiner rejected claims 1, 10, 17-18, and 20-23 under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. App. Pub. No. 2002/0000067 to Numata et al. (“Numata”).

### A. The Rejection of Claim 1

The Examiner rejected claim 1 as being anticipated by Numata. However, the Examiner appears to have disregarded the amendments made in Applicants’ July 20, 2006 Amendment,

which includes amendments to claim 1 directed towards plasma fuel reformers, which Numata does not disclose. Based upon the interview with the Examiner that took place on November 30, 2006, the Examiner appears to recognize this distinction. Furthermore, claim 1 has been again amended to include other limitations not found in Numata. As such, the current rejection of claim 1 is improper and should be withdrawn.

#### B. The Rejection of Claim 17

The Examiner rejected claim 17 alleging that Numata contains all of the limitations of claim 17. Contrary to the Examiner's statement that all elements are disclosed in the Numata reference, they are not. Specifically, Numata does not disclose advancing air, at predetermined time intervals, in the absence of fuel into the fuel reformer. The Examiner has cited page 2, paragraph [0024], lines 1-11 of Numata for supporting her belief that Numata discloses advancing air in the absence of fuel into the fuel reformer. However, the Examiner has disregarded other portions of Numata that contradict this belief. Numata discloses that:

Upon execution of the soot removing routine, first of all in step S100, the CPU 62 of the electronic control unit 60 outputs a drive signal to the blower 26 so as to increase the amount of air introduced into the gasifying/mixing portion 28 from the blower 26 by a selected or predetermined amount. The CPU 62 then proceeds to step S102 and determines whether or not a selected or predetermined period has elapsed. If the result of step S102 is YES, the CPU 62 proceeds to step S104, performs processings of resetting the increased amount of the introduced air as an initial amount, and terminates the present routine. If the result of step S102 is NO, the CPU 62 returns to step S102 again. **If the amount of introduced air is increased, raw gas with an increased ratio of air is supplied to the honeycomb filter 32.** The soot 12 trapped by the surface of the partition 34 of the honeycomb filter 32, or in the gaps formed in the partition 34 of the honeycomb filter 32, is composed of carbon particles. Therefore, the soot 12 is burnt by oxygen in air, turns into carbon dioxide reaches the side of the processed gas flow passage 42, and is removed.

(Numata, pg. 2-3, para. [0024].) (Emphasis Added.) The honeycomb filter 32 disclosed is a component of a reforming portion 30 of a fuel reformer apparatus 20, as shown in claim 1. Thus, if an increased of amount of air is desired, the appropriate signals are generated such that more air is supplied to the gasifying/mixing portion 28. **However, Numata clearly provides that the supplied air, increased in amount or not, is still supplied to the filter 32 along with fuel (raw gas).** Therefore, Numata clearly does not teach advancing air in the absence of fuel into a fuel reformer. As such, the rejection of claim 17 is improper and should be withdrawn.

#### C. The Rejection of Claim 10

Claim 10 is dependent upon claim 1. As a result, the rejection of claim 10 should be withdrawn for at least the reasons discussed in regard to claim 1.

#### D. The Rejections of Claims 20, 22, and 23

Claims 20, 22, and 23 are dependent upon claim 17. As a result, the rejections of claim 20, 22, and 23 should be withdrawn for at least the reasons discussed in regard to claim 17.

### CLAIM REJECTIONS BASED UPON § 102 - DANIEL

In the official action, the Examiner rejected claims 1-4 and 7-8 under 35 U.S.C. § 102(e) as being anticipated by U.S. Pat. 7,014,930 to Daniel et al. ("Daniel").

#### A. The Rejection of Claim 1

Claim 1 has been amended to include a limitation directed towards determining if a soot purge of a plasma fuel reformer is to be performed and generating a purge-soot signal in

response to the determination. Daniel does not disclose this limitation. Furthermore, this amendment to claim 1 in regard to Daniel was preliminarily discussed with the Examiner during the November 30, 2006 interview. During the interview, the Examiner appeared to at least preliminarily agree that this limitation was not taught in Daniel. As such, the amendment to claim 1 has rendered the Examiner's rejection moot.

B. The Rejections of Claim 4, 7, and 8.

Claims 4, 7, and 8 are dependent upon claim 1. As a result, the rejections of claims 4, 7, and 8 should be withdrawn for at least the reasons discussed in regard to claim 1.

CLAIM REJECTIONS BASED UPON § 103 - DANIEL/CHRISTEN

In the official action, the Examiner rejected claims 9 and 19 under 35 U.S.C. § 103(a) for obviousness based upon Numata in further view of U.S. Pat. App. Pub. 20030039871 to Christen et al. Claims 9 and 19 are dependent upon claims 1 and 17, respectively. As such, the rejections of claims 9 and 19 should be withdrawn for at least the reasons discussed in regard to claims 1 and 17.

CONCLUSION

In view of the foregoing remarks, it is submitted that this application is in condition for allowance. Action to that end is hereby solicited.

In the event that there are any questions related to this response in particular, or to the application in general, the undersigned would appreciate the opportunity to address those

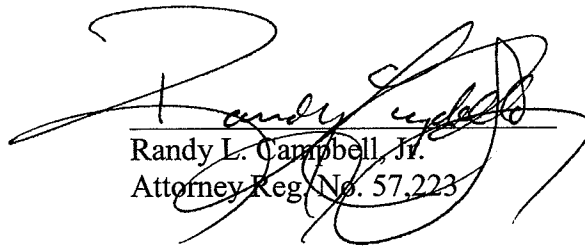
questions directly in a telephone interview to expedite the prosecution of this application for all concerned.

It is respectfully requested that, if necessary to effect a timely response, this paper be considered as a Petition for an Extension of Time sufficient to effect a timely response and shortages in other fees be charged, or any overpayment in fees be credited, to the Account of Barnes & Thornburg LLP, Deposit Account No. 10-0435 with reference to file 9501-70665.

Respectfully submitted,

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